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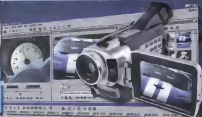
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IN THIS ISSUE



**GREATER TORONTO
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COMING UP

May 2002

Cover story: *Save Wireless*
Let's Test: *Security*

All Available: *Wednesday, Feb. 27, Apr. 2*
Distribution: *Wednesday, Apr. 10, Apr. 17*

June 2002

Cover story: *Working the Web*
Let's Test: *Notebooks*

All Available: *Wednesday, May 1, May 8, May 22*
Distribution: *Wednesday, May 8, May 15, May 22*

July 2002

Cover story: *Videoconferencing*
Let's Test: *Graphics and sound*

All Available: *Wednesday, June 27, May 28*
Distribution: *Wednesday, June 27, June 13, June 20*

Commentary

- 6 From the Editor
- 10 Letters

New & Notable

- 12 What's New
- 25 Poweron talks up full-colour image sensor

Digital Video

- 16 Video-editing basics
Foundation techniques tested on range of editing software
- 20 Digital video state of the art
- 30 Making your own DVDs and WCDs
Repe is precise, today's delivery medium is the shiny platter
- 38 Mid-range video editing
- 42 Video editing on your notebook
- 45 Analogue, digital, and in between

Hands On

- 34 Cutting the wires
XP Lab looks at wireless Internet sharing devices
- 34 Vidi-K hardware firewall for your drive
- 34 Annual tax software audit

Small Office Technology

- 45 News can be hazardous to your health
Improving ergonomics can help you and your bottom line
- 45 Symantec reintroduces firewall hardware
- 56 Quick Tips: Outlook appointments
- 41 Office Suite: Training Access data retrieval

Platform News

- 66 Apple News: iMac G4 sells well in value face-off
- 66 Palm OS 5 beta debuts
- 66 Real intros mobile streaming platform

Online & Connected

- 66 Building an arcade cabinet: Selecting hardware, joystick
- 76 Weaving your own Web site: EE extensions to CSS, Part 4
- 90 Worldwide Internet growth slowing

Careers & Training

- 78 Java Tutorial: Java to the Web
- 92 Career Profile: Technical writing and beyond
- 92 Book review: Easy steps for PHP beginners

Reader Services

- 58 Advertising Index
- 58 Business Directory
- 62 Classified

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« LETTERS »

Technology marches, but to where?

I enjoyed your perspective on the march of technology (see "Letter from the Editor," March 2002) and offer this tidbit to your companions with 35 mm photography.

Using available 35mm movie film, Leitz built the first 35mm commercial Leica camera in 1925. By 1930, the company built a camera with an interchangeable lens. I can take a lens built in 2001 (I have one) and put it directly on that 1930 camera, and I can put that original 50 mm f2.5 lens on my 2001 camera. (The one with the 2001 lens takes better pictures.)

On the other hand, I have a digital camera purchased last week that is incompatible with Windows XP.

James Spears

Mac and Windows I

Thanks for putting together a magazine that informs readers on new products and, more importantly, actually instructs on how to use the current stuff.

Until a year ago, I worked exclusively with PCs but have had to learn about Macs for my job. Your article "Mac Macs, Mac Windows debate" is the MacX issue, is the one of practical information that is rarely if ever approached in the "glory" type magazines. The same that many people with home networks have been scared away from Macs simply because they're given the impression that they are incompatible with PCs.

As your article pointed out, with the right software and some basic networking equipment, the notion of "platform inde-

pendence" is becoming a reality.

I have used Peer Web on a PC and a small FTP client on a Mac to transfer files between the two platforms with great success, but I can see a real advantage to actually working directly on the source files to prevent version conflicts.

I look forward to every issue of TFP. Keep up the good work!

Mike Poyer

Mac and Windows II

A cheap alternative to DVD or PC Macian costs for just file sharing and transferring files. It has two main prerequisites: one, you have Macs with OS X, and two, an always-on DSL or cable modem with a sharing mechanism like a hardware or software router.

On all the Macs, in File Sharing, turn on FTP server and add the other users to your Users list (with passwords). Now use an FTP program on the PC to access the shared folders. Apple dates with OS X you can access the PC running Windows XP by IP protocol, by entering in Connection to Server "ftp://ServerName:Username" [ServerName = IP address or DNS].

Andrew Lewis

Big hard drive headache

I recently purchased a Maxtor Viper 40 GB hard drive (ATA/133, 7,200 rpm) but my computer doesn't detect it in the bootup sequence. I have a 230 MHz Pentium III and a Sony 840 motherboard. I was told that my BIOS was only good for about 8 GB so I was going to add five partitions at 1.6 GB each. Is the BIOS controller (standard) too old to recognize the new drive? The computer just sits and does nothing when it gets to the autodetect primary master sequence. I have tried jumping all types of ways but nothing. Help please!

E. Cavallotti, Australia

TFP Lab repairs: Here are a few things to try:

1. Try flashing the BIOS and see if that changes the board's ability to recognize the drive. The latest BIOS is at Sony's site (www.sony.com/usa/infocenter/bios). Scroll down to BIOS then download. It may not fix the problem, however, since the most recent one is dated Sept. 2, 1998.

2. Plug the drive into a colleague's computer and purchase the drive on their system. This would only solve the problem if partitioning was the issue. If your own BIOS won't recognize the drive at all, this won't help.

3. Find a way to make the drive external. There are external drive enclosures that you could use with your machine—either USB or FireWire. If you go with USB, you won't get much speed out of the drive. If you go with USB 2.0 or FireWire, you'll have to add a controller card, which could introduce other issues. Since the configuration you have seems a bit odd, it's hard to predict what kind of conflicts you might get by adding one of these controller cards, unfortunately. You may also get it to work by adding a new ATA/133 controller into an available PCI slot, but again, that might cause other conflicts.

4. Exchange the drive for something a bit more modest. If you want something that won't then at least trade down to an ATA/66 or ATA/100 drive. With the rest of your system configuration, you're probably not going to notice the performance difference.

5. If all else fails and you absolutely need to use a drive of this capacity, you may have to upgrade the whole system. Of course, there'll be other advantages to a newer, faster system, too. □

Biometrics only part of solution, says Lexis-Nexis

WASHINGTON, D.C.—Biometrics and other technologies being crafted to open but identity fraud may not be completely effective unless victims are asked to provide information about something only they would know, such as an old phone number or a former address, according to a white paper released by Lexis-Nexis, in late February.

The white paper, co-written by Lexis-Nexis' chief privacy officer Norm Wilson, suggests that biometrics may only be

part of the answer to the technological approach for fighting the growing problem of identity fraud.

"The model is predicated on the theory that an impostor may know some of the information pertaining to a real individual, but he or she likely will not know all of the real person's identifying information," the authors write.

The white paper also calls on the U.S. Congress to create a task force to determine the most efficient and effective

means of identifying people.

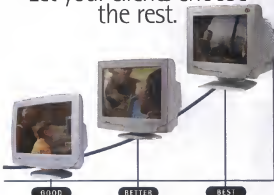
The problem of identity fraud is a hot issue in the U.S. capital, with some lawmakers pushing for a more universal national identification system rather than a state-by-state approach.

Lexis-Nexis provides the very services it is urging the Congress to consider. The company sells authentication technology that matches information in a consumer's credit history with other databases.

—Newsbyte

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WHAT'S NEW

StepCharger pumps up battery power



Tempe, Fla.-based AcadianPower (www.acadianpower.com) has unveiled a foot pedal device that lets users refill the batteries to their portable PCs when they aren't near an electrical power source.

The StepCharger—which requires 13.8in.dia.8 in (5.4in.dia.3.1in.)—can generate up to 4 Watts (at 9C18V), according to AcadianPower. A user steps on the device and pumps up and down with their heel to charge the battery in their portable PC.

AcadianPower says the device can also be used to charge with the phones, cell phones, CBs, walkie talkies, digital cameras, video cameras, radios, or other devices with a rechargeable battery.

The StepCharger has a list price of US\$149.95 and can be purchased directly from AcadianPower. At press time, the company did not have a release date for the device.

AcadianPower does have another charger that is already on the market. It is a lighter, handheld device that, when pumped repeatedly, recharges batteries in smaller electronic devices, such as cellular phones, CB radios, rescue lights, rechargeable CD players, radios, and tape players. The handheld recharger has a list price of US\$149.95.

—TOP Staff

Clonk encrypts handheld, PC data

Chapqua Inc. (www.chapqua.com) has unveiled Clonk, software that encrypts information stored on allows Palm OS-based handhelds and Windows PCs. The software resides on both the handheld and the PC desktop and synchronizes data between the two. It incorporates 128-bit encryption, and requires that the user name and password for the application matches on both devices, for additional security.

Clonk is available for download from the Chapqua Web site, for US\$79.95.

—TOP Staff

Full-screen VCD playback from Minith

Vancouver, B.C.-based Minith Technology (www.minith.com) has released version 3.2 of MacVCD, its full-screen video CD player for computers running Mac OS.



VCD movies are frequently stored in multiple files (called tracks) and often on more than one disc (in the case of CDs). MacVCD automatically recognizes this format, finds, loads and plays the movie, automatically chaining tracks together and auto-jecting a disc when it's done.

According to Minith, MacVCD offers full-screen display, even on large monitors. Other features include back and chapter selection support; support for both multi-language and karaoke soundtracks; and movie file saving. The new version adds hands-free speech-activated control playback on a second display (like a TV) and advanced movie controls including slow motion.

Minimum system requirements for MacVCD are Mac OS 9 and QuickTime 4.0. MacVCD 3.2 is available for Apple hardware running OS X.

MacVCD for Mac OS 9 can be downloaded from Minith's Web site. The download includes a demo version that can be run without a registration key, which is required to unlock the full version. The key is US\$15.

—TOP Staff

ViewSonic targets home theatres

ViewSonic Corp. (www.viewsonic.ca) has unveiled two projectors designed to meet the requirements of studios, but also to appeal to home users.

The company is billing the P9560 and P9550 as affordable alternatives to standard bulky and expensive big-screen TVs. The units each weigh 2.25 kg (5 lb.), each, and can be used with video and TV signals (including HDV), as well as with PCs and laptops. The higher-priced P9560 offers higher XGA resolution.



According to ViewSonic, both projectors operate at 33 decibels and offer one-touch setup. Other features include 1,200 lumen brightness, a short focal length for large clear images at a short distance, digital linecure correction, and zoom functions, as well as enhanced video inputs for component and i-video, and an eco-mode setting for energy and lamp life conservation.

The P9560 and P9550 carry estimated street prices of \$3,199 and \$4,149, respectively.

—TOP Staff



Typing tutor revamped

Individual Software Inc. (www.individualsoftware.com) has introduced a new version of Typing Instructor Deluxe. Version 12.0 contains an updated database that tracks and reports on user progress, and enhanced all graphical icons to guide users in correct finger placement.

Instruction is organized into lessons, tests, and practice material along a travel theme, which can be supplemented with material from the Typing Instructor Web site. Users can follow on-screen lesson plans or design their own plans targeting specific problems.

Progress reports show improvement and identify weak areas by key finger, hand, and key row, and with bar, line, and stack graphs.

Typing Instructor Deluxe has a suggested retail price of US\$79.99 (single user license fee), supports Windows XP, Me, 2000, and 98. A business version is available directly from Individual Software.

—TOP Staff



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Video-editing basics

Whether you're putting together a presentation or working on your future Academy Award, here are a few foundation techniques you'll need

By Sara Townsend

Today's market for editing software is varied enough that deciding which program suits you best is a challenge. Should you spend close to \$1,000 on Adobe Premiere—generally recognized as the most powerful of the bunch—or buy a digital video (DV) camera for the same price and just use Microsoft Movie Maker, which is included with Windows Me and XP?

You'd think the answer would be clear: Premiere for "serious" work, everything else for hobbyists, right? Well, it's not quite that simple. I've explored the differences between four popular programs (Microsoft Movie Maker XP, MGI VideoWise 5.6, Ulead MediaStudio 4.5, and Adobe Premiere 6.0), and looked at how each handles some of the basic tasks of digital movie making.

Getting your raw material

Capturing video is largely the same, regardless of software; the big difference is whether you're using an analog or digital source. Analog requires some kind of capture hardware, which will usually include its own application, but capturing directly into your editing application can be a big time-saver. All four programs effortlessly worked with any ATI All-in-Wonder Radeon, but let's look at how it was done in the Video Capture component of MediaStudio.

1. When you start the Video Capture program, you should immediately see your video source in the preview window. If not, make sure the right capture device is selected by choosing Setup > Ulead DirectShow Capture Plug-in from the menu. If you're still missing the image or sound, set your hardware input parameters by choosing Setup > Video Properties from the menu.
2. Choose Capture > Video to set parameters like resolution, frame rate, clip length, and a filename and destination for the clip. Click OK to save the settings.
3. You can either start capturing immediately, or capture at a later time by



The challenges represent a range of software available to casual users and serious hobbyists interested in editing video on their PC.

Adobe Premiere (top)
www.adobe.com Street price: \$799

MGI VideoWise (top left)
www.mgi.com Street price: \$109

Ulead MediaStudio 4.5 (bottom right)
www.ulead.com Street price: \$149 (MSRP)

Windows MovieMaker (top right)
www.microsoft.com Street price: Windows XP Also download: ATI All-in-Wonder Radeon

Microsoft Movie Maker (bottom)
www.microsoft.com Street price: \$29 to \$39

clicking the Record button under the preview window.

Using a DV camera is a much simpler affair, because you're not so much capturing video as downloading it.

Not all programs give you the same level of flexibility when it comes to analog capture. Most have a fairly wide variety of presets for resolution and frame rates you can use, and allow some level of customization, whereas others constrain you a bit. At one end of the spectrum is Premiere, which lets you

select any oddball resolution if you're so inclined, and can even do time-lapse capture (say, one frame per hour) or manual single-frame capture for stop-motion animation. At the other end is Movie Maker XP, which only gives you a handful of capture resolutions, all of which are designed for playback on a PC or handheld.

Using a DV camera is a much simpler affair, because you're not so much capturing video as downloading it. DV cameras pipe video and audio data through a FireWire port (also known generally as IEEE 1394 or iLink). Sony's iLink recorder has a fixed format, eliminating configuration hassles. Also,

FireWire is two-way, using VCR-like controls, you can control the video camera from your computer, preset the exact spot at which you want to start capturing, and more, depending on a program's features. Again, in the Video Capture application:

1. Choose Setup > Ulead DirectShow Capture Plug-in to select your DV camera.
2. Choose Setup > Device Control and change Current Device to the appropriate 1394 Device Control.
3. Use the VCR controls to find the segment you want to capture.
4. Click Record.

Fade to black (or white, or pink, etc.)

The simplest way to get from one scene to another is to use a jump cut, or a sudden switch from one to the other. But you can get more subtle or dramatic effects using transitions like cross-dissolves (fading one image out as another fades in), wipes, cross in and out, and more. Then the classic fade-out or fade-in is just a cross-dissolve to or from a black frame.

Transitions are such a basic part of film language that it's surprising Movie Maker XP doesn't have any of these functions beyond a simple cross-dissolve (accomplished by dragging one video clip on the timeline so that it overlaps another). It's doubly surprising when you consider that Macromedia's own PowerPoint presentation software has more than 100.

VideoWise puts many transitions at your disposal, and uses a fairly common and flexible method to apply them.

1. Drag your two clips from the Video Library onto the Storyline strip.
2. Double-click the filmstrip graphic between the two clips; the Transitions Library appears.
3. Select the type of transition you want to use and set the duration in the text box at the bottom of the screen.
4. Preview the transition in the preview window. When you're satisfied, click Apply, then Close.

Continued on page 18

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Video-collage basics

Continued from page 35

Presenters method of adding transitions is conceptually similar, but it has the added bonus of being able to specify the opacity of the images at the beginning and end of the transition, and to combine transition effects one after the other.

The sound of music

Almost every video production has two soundtracks running simultaneously: the source's original soundtrack (dialogue, ambient noise, etc.) and music or effects that add interest. Adding a new audio track to a Movie Maker XP project is simple enough: drag an audio clip from your collection onto the timeline. To balance the volume between your video clip and the audio clip, click the **Set Audio Levels** icon to the left of the timeline; a cross-fader appears, which you can adjust during playback. You can turn or overlap audio clips the same way you would video clips.

It's as easy as falling off a bicycle, but it also succeeds flawlessly for its simplicity. One of the most common video tricks (you see it every night on the evening news) is for the camera to focus on

someone talking, then switch to another scene while the first person's voice is heard over the new visuals.

To do this in Movie Maker XP, you'd have to extract the first video clip's audio in another program, then lay it down as a separate audio track. Not only is that extra step inconvenient, you'd likely have to redo some of your work if you later change the timing of your clips—exactly the sort of headache editing programs are supposed to prevent.

VideoWave lets you layer multiple audio clips, each of which can have its own audio level and fade settings, and can be trimmed independently. However, it's hard to relate the beginning or ending of an audio clip to a specific point in the video without pen, paper, and some math skills.

In contrast, MediaStudio and Premiere use a method reminiscent of those used in my film school days, like Movie Maker: audio clips are laid down on the timeline, positioned exactly where you want. Each bar representing an audio clip has a line running through it, representing volume. You can set a point on the audio track by clicking on it, then drag that point up or down to represent a shift in volume at a particular frame.

You can add as many points as you like and move them around at will.

Output

When all is said and done and you've finished editing your masterpiece, you'll want to output it to videotape, Video CD (VCD), DVD, AVI, or QuickTime, or maybe all of the above. Every editing package can at least save to AVI, QuickTime, or MPEG file formats, in a variety of sizes and frame rates appropriate for delivery over the Web, email, or CD-ROM. The exception is Movie Maker XP, which only exports Microsoft's more recent Windows Media Video (WMV) format.

Similarly, you can output to video from any of these programs if you have a video-out jack on your video card. Premiere, however, goes the extra mile by providing optional color bars and a 1 kHz tone for calibration purposes. If you've been working with a DV camera and a FireWire port, you can output digital video to the camera directly.

Some packages even include audio VCD/DVD-burning support. If you're using VideoWave or MediaStudio, you can create VCDs, Super VCDs (SVCDs), or DVDs without leaving the program.

In VideoWave, you can even work back and forth between DVD authoring and video editing by clicking the **Author DVD** and **Storyboard** icons on the left side of the screen.

Summary

Three fair take—options, transitions, sound mix, and output—are among the most basic tasks of any video-editing project, and you should, hopefully, have an idea of which package best supports your needs and working methods. But if you're still uncertain or need to touch on more specialized aspects of video production, five trial versions of all of these programs are available on the Web (except, of course, for Movie Maker).

If you can't decide between two programs, consider getting them both. The advantages of working with standardized file formats like AVI and QuickTime is that you can use whatever tool you need for a given job. And with good tools and perseverance, you just might be able to give Steven Spielberg a run for his money. □

Erin Townsend (erint@jabco.com) fondly remembers empty sessions at a stereoid editing table with warm film and magnetic stock.

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Digital video state of the art

Future Fellini's no longer have to mortgage the family home to setup a real-time video editing system

By Hagyard Seto

George Lucas is said to have commented that the next great film maker will very likely be an solo locum, thanks in part to digital video technology. The advancements in digital video and computers over the past five years have reached critical mass. We are now just waiting for that 12- or 13-year old genius to appear.

DV Magazine has chronicled case studies of people who created their first, full-length features using a chunkie (by today's standards) Pentium systems. There is even a book out on producing full length features using digital video.

The holy grail of video-editing systems. Video editing is at the heart of every selling by images. A PC-based video-

editing system typically consists of a video capture card, a computer with a Pentium or faster processor, and appropriate editing software for downloading video onto a very fast hard drive and manipulating the images and sounds.

Five years ago, in an article for TCP, I described how to build a Pentium-based video-editing system. It wasn't rocket science: anyone with a working knowledge of PCs or a good relationship with a value-added reseller could launch his or her moviemaking career with a fairly simple setup. (Having the requisite talent to tell a good yarn on video, a snappy story, and something on amount of computer hardware can replace.)

However, using a Pentium system with a \$1,800 video capture card of the kind available five years ago, creating even simple scene transitions required a

minute or more of computer processing. For very complex special effects, we could be talking about hours, or even days. This process of the computer churning away to create an effect is called rendering. The goal of both non-linear editing systems and non-linear systems is to see editing results instantly. The key component in a PC-based system that allows immediate viewing of special effects is referred to as a "real-time" capture card.

Five years ago, getting video into a computer was both expensive and fraught with hardware and software glitches. So are special effects an anti-time was a luxury unavailable to most hobbyists or entry-level professional videomakers, unless they were prepared to mortgage their grandparents' house.

At that time, *DV Magazine* estimated that a top-end system—with a 133 MHz Pentium CPU, 128 MB EDO RAM, a CD hard drive, and a video capture card capable of real-time rendering—capable of broadcast quality output would carry a US\$8,000 price tag.



A Yencover audio/video retailer at the time offered a professional configuration in the form of the industry leader Avid Xpress. The price tag for that was about \$25,000, without the benefit of real-time editing.

Fast forward five years, and what do we see? For about \$7,000 (and those are Canadian dollars) we can purchase a

Continued on page 23

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< VIDEO EDITING >

Digital video state of the art

Continued from page 23

manipulating the gigabytes of video information. This computational time can be a few seconds or close to a minute, depending on the computer system. The speed of the computer is a factor here. The faster the computer the better—buy a computer with the largest number of gigabytes (or megabytes) you can afford.

The addition of proprietary chips onto a video-capture card also plays a critical role in speeding up the rendering of special effects. In some video-editing systems, dual streams of video are supported in order to speed up the editing process. An additional CPU (dual-CPU systems) can also assist in achieving the holy grail of real-time rendering.

The solutions

The key advancements over the past few years have been:

Cheaper real-time capture cards. The engineers have been hard at work these past few years. Faced by demands from a growing hobbyist and prosumer market, video capture cards make real time rendering a reality. These cards also take advantage of the meteoric speed of the new breed of gigahertz fast CPUs.

In particular, the advent of FireWire capture cards put the digital video format into the hands of the amateur.

Evolution of Windows Office. Along with getting beyond the 2 GB partition limit, video codecs (i.e., computer formats of video information storage) have been reengineered to allow bigger files. Some writers indicated that the early versions of the AVI format have their own 2 GB limitation.

Bigger, faster hard drives. These drives can quickly receive and store massive amounts of data from the capture card. A recent PCP article provides an excellent survey of the kinds of hard drives available that are ready for digital video work. I remember a British video-maker once suggested that DHD (i.e., ATA) drives are adequate for professional-level video systems and was derided by many North Americans as a digital video discussion forum. Today, with the monster 80 GB or bigger Ultra ATA drives offered by Maxtor and Seagate, there is no issue of video storage.

The main issue now is getting these components to work well together.

Continued on page 26

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28 APRIL 2000 THE COMPUTER PRICE LIST FOR THE WEEK OF APRIL 24, 2000

< NEW & NOTABLE > Foveon talks up full-colour image sensor

By David Tanaka



Foveon says its 21 sensor can replace a property of silicon chip material to allow different frequencies of light at different depths.

ORLANDO, Fla.—Carter Mead calls his X3 image sensor "truly revolutionary" and one that he fundamentally disrupted conventional thinking about sensor design.

The technology on which the founder of Foveon, Inc. (www.foveon.com) based such superstitions during a news conference at the Photo Marketing Association trade show and conference here, indeed cracks a different path.

In the X3 sensor, each photosensitive pixel captures all three colours needed to construct an RGB (red green blue) image.

By contrast, image sensors used in all other consumer and prosumer digital cameras available today use a mosaic of colour filters over the sensor array.

This architecture means that each photosite captures information for just one colour.

The camera's image processor then uses algorithms to reconstruct the image in its full colour fidelity, but this takes time and processing power, and is also not completely accurate.

Foveon, which Mead founded in 1997, exploits a property of silicon chip material to absorb different frequencies of light at different depths.

The company calls this phenomenon "vertical colour separation."

Continued on page 46

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Making your own DVDs and VCDs

Continued from page 30

is, in theory, a fairly simple four-step process. Capture your video according to the format, save them in a MPEG format, then burn them onto a CD or DVD. In practice, it is only that simple once you've worked through a couple of obstacles and caveats. The most pernicious of these obstacles is the flexibility of the VCD and DVD MPEG formats (there isn't any). The specifications are extremely particular, which is great for compatibility, but sometimes frustrating when it comes to creating your own.

For instance, Equilibrium's Debutshare Pro 4.5 can convert to and from many digital media formats, but MPEG-1 and MPEG-2 aren't among them. And just the ability to write MPEG files isn't a guarantee: MGA VideoWave has long been a popular and well-used video editing program, but while each version can produce MPEG-1 files, it won't write VideoWave 4.0 that those MPEG-1 files can be VCD-compatible. DVD-compatible MPEG-2 files weren't available until version 5.0.

Then, too, there are issues with actually burning VCDs. Some burning programs can create Video CD 2.0 menus, others can't. Some are more lax about the source MPEG parameters, fixing certain problems like file size before burning.

Finally, few support more advanced VCD formats like SVCD. No single pack-

age does it all. Similarly, DVD authoring programs provide varying levels of customization options.

Closely related VCDs and DVDs aren't for everyone. The aforementioned constraints notwithstanding, VHS tapes are easy to come by, and the dollar-to-minute ratio is roughly the same between tapes and VCDs (black DVD media is still comparatively pricey). Even the durability and slowness of optical media may not be enough to tip the decision for most.

But for some people, they can be a godsend. For example, in my other life as an entertainment writer, I receive a lot of preview tapes with clips, interviews, and music trailers. Because those tapes rarely exceed 15 minutes, I can easily combine the video from a stack of VHS cassettes onto one VCD, which takes up a fraction of the space. Furthermore, the random-access nature of the CD makes VCDs a good choice for video I need to skip through quickly, using the menus to hop through tracks.

The Video CD is the easiest of the formats to create; the methodology also provides the template for creating any other kind of CD or DVD video. So we'll start from here and expand on the other formats later.

The first step in the process of creating a VCD is, of course, to have some video clips to work with. Although there are several video capture devices on the

market, my gudge of choice—and therefore the basis for my examples—is ATI's All-in-Wonder series of AGP cards. I like the All-in-Wonder because it's fairly versatile and doubles as an internal video card—when you have a work area that sometimes acts as a transform video studio, you learn to appreciate anything that reduces digital clutter. In this case, I used the 32 MB All-in-Wonder Radeon with a 733 MHz Pentium III to ensure smooth capture.

While VCDs use MPEG-1 videos, it's impractical to capture in the MPEG format outright; it uses a lossy form of compression, which ultimately means that the image degrades every time you resize (and therefore recompress). Since it's almost a certainty that you'll be editing your video clip after it's captured, you should use a lossless or near-lossless format like AVI or QuickTime for your master and interim files. I'll be concentrating on AVI because, for most of the rules discussed here apply either way.

Creating VCDs is a perfect world

Because the various VCD formats are very specific, it's best to capture video that adheres as closely to spec as possible; it will save you considerable trouble later. All of the VCD and DVD formats use the drop-frame NTSC standard, which streams video at a rate of 29.97 frames per second (fps). Audio should be at CD quality—44.1 kHz, 16-bit stereo.

Sometimes you may have to make do with what your software allows. For instance, the All-in-Wonder Radeon's Digital Live! software doesn't have a 352x240 setting for VCD compliant video. (Curiously, the older All-in-Wonder 128's software does have it.) I usually set the capture resolution to 352x240 and scale the video later on Premiere (or whatever) so that absolutely nothing is lost, but as I haven't been able to detect any visible artifacts from the 10 percent pixel increase, I don't consider it worth the extra time and disk space.

Once you've captured and collected all your clips, you can edit them with your editing program. This process would take up a few hours by itself; the important part for our purposes is that the editing program is able to save as a VCD-compliant MPEG. In the case of MGA VideoWave 4.0, the process is fairly simple: choose the Preset Video option, then select the

appropriate Video CD template. VideoWave will handle the rest.

Burning your VCD is also fairly straightforward. Most popular CD-burning programs include the ability for at least rudimentary VCD creation; that is, designing and dropping your MPEG files in order, creating a disc on which the files become video tracks that you can skip through with your remote or playback software. Some packages, such as Rower's Easy CD Creator 5.0 Platinum, also let you create a menu screen.

Creating a menu structure requires a start sequence and at least one menu page. Both of these should be familiar to DVD consumers: a start sequence is not or more MPEGs that will play automatically when the disc is inserted, and a menu page displays an MPEG you create showing the different menu selections (Unlike a DVD, viewers can't use the remote's arrow keys to select menu items; the tracks are selected manually.) Once you've defined your layout, the hard part is over: just click Record and burn your Video CD.

Creating VCDs is a not-so-perfect world

If the editing program you're using doesn't create VCD-compliant MPEGs, you can always use a conversion program. There are several commercial programs on the market, such as Media 100's Media Converter, as well as freeware options like AVCMPEG and TMPEGCE. (Once if your commercial program outputs VCD

Continued on page 76

VCD and DVD recording formats

There are many similarities between the different VCD and DVD formats, which should come as no surprise—they all fairly, after all. VCD has by far the most offspring: it spawned both SVCD and XVD, which in turn led to XVD. In the end that the XVD, SVCD and Mini-DVD formats, while providing the best quality of inexpensive CD media are also the most likely to find standard DVD players recognize them, and software players support a nearly equal split.

If you're interested in delving into the intricacies of subtitles and multiple audio tracks, the best starting point is VCDhelp.com (www.vcdhelp.com), which provides two files, software reviews, and plenty of links to technical resources on the Web.

—Fran Townsend

	VCD	SVCD	XVD	SVCD	MiniDVD	DVD
Resolution	352x240	480x480	720x480	720x480	720x480	720x480
Recording media	CD	CD	CD	CD	CD	DVD
Newer video format	MPEG-1	MPEG-2	MPEG-1	MPEG-1	MPEG-2	MPEG-2
Video bitrate (Mbps)	1.15	2.5	5.5	9.8	9.8	9.8
Audio bitrate (kbps)	224	320-448	224	320-448	320-448	320-448
Audio audio tracks	1	2	3	2	4	8
Subtitle tracks	N/A	N/A	N/A	4	32	32

Notes: 1. Streamable CD formats include CD-R and CD-RW. Recordable DVD formats include DVD-R, DVD-RW, DVD-R, DVD-RW.

2. VCDs: the only format to use a constant bitrate, fits about 45 minutes on a 650 MB disc. You can fit more or less footage in either for use by varying the video and audio bitrates.

Hands On

Lab Test • Hardware Evaluations • Software & CD-ROM Reviews

Cutting the wires

TCP Lab looks at the latest in wireless Internet-sharing devices

By Sean Connolly

A high-speed Internet service made their way into more and more homes, the focus on broadband sharing devices is growing, for two key reasons. First, many Canadian households have more than one personal computer and households want a way to connect them together easily. Second, a connection to broadband networks (either DSL or cable) comes with security risks—their faster speed and always-on nature make these connections more attractive to hackers.

Broadband-sharing devices solve two problems at the same time. They stop hackers dead at the sharing device, with a technology called Network Address Translation (NAT). While not a firewall, NAT adds a layer of protection from the malicious elements in the outside world, as the range of IP addresses



create your network are not visible from the outside world. In effect, the outside world sees only the single identity of the broadband-sharing device.

The device establishes a connection

with your service provider, then serves as your one-point gateway to that provider. Thus in its second benefit, many providers allow subscribers only one IP

Continued on page 38

Annual tax software audit

Online and retail products for preparing your personal return

By Joanne Grell

The competition for the personal tax preparation software market is, again, being waged on two fronts: the retail CD-ROM products (of which there are now only two in Canada) and the online tax filing programs, which are growing in popularity.

QuickTax QuickTaxfile

From Intuit Inc.
www.intuit.ca
Price: \$39.95 (QuickTax Basic), \$59.95 (QuickTax), \$49.95 (QuickTaxfile), \$19.95 (QuickTaxfile single return), \$24.95 (QuickTaxfile spouse)

TaxWiz Deluxe TaxWiz Online TaxWiz To Go

From Thomson Inc.
www.thomson.ca
Price: \$29.95 (Online), \$39.95 (Online To Go, single return)
GrillTax
From Coder GrillTax and Assoc.
www.grilltax.com
Price: \$25, \$45 (annual)
UTS.ca
From UTS
www.uts.ca
Price: \$39.95 (single return), \$49.95 (family return)

So which is best for you? If you're using tax software or even preparing your own return for the first time, the CD-ROM products offer a better package of expert help, with full-screen video tutorials.

The vendors of online tax preparation
Continued on page 38

Vault-X a hardware firewall for your drive

By Martin Reilken

It's on record as not being 100-per-cent software. I was arrogant enough to think that I wouldn't do anything that would get me into trouble.



Vault-X LED tells users what mode the backup system is running in

feel even more nervous and vulnerable.

At a recent computer fair, a friend sent me over to look at the Vault-X Storage Firewall. Ruled by its developer, Toronto-based Valt X Technologies Inc., as a storage firewall security system, it promises to protect my system against virus and hacker attack. According to the brochure, "unauthorized changes are swept away with a simple reboot."

Sounded good to me.

Of course, the protection I really care is from authorized personal stupidity, and, somehow, Vault-X does that too.

Vault-X is not like other system backup and recovery solutions. It's a hardware device that requires neither drivers nor resident software. A write-protected boot diskette is required only to change settings. The company is confident enough to offer a \$16,000 reward to anyone who can cripple the system.

To install Vault-X, you unplug and remove your hard drive, place it on the Vault-X sled, and slide the sled into an available 5.25-inch slot, like those you'd

Continued on page 38

Vault-X Storage Firewall

From Valt X Technologies Inc.
www.valtx.com
Price: \$39 (single version)

About five months ago, for some lucky reason, I got nervous and abandoned that position. I have since been saved from infection three times. The fourth time the virus struck before updated definitions were released. That made me

Annual tax software audit

Continued from page 34

programs—who can't compete on the mainstream front—promote their cheap, fast service to those who can do their return without the frills.

The big box



The two retail products are QuickTax and TaxWiz. QuickTax is available in basic, deluxe, and business versions for Windows, and deluxe for the Mac OS. TaxWiz is available in a deluxe version for Windows only.

Both include a range of multimedia and sound assistants, technical support, tax guides, integrated special returns, French support, extensive Web sites with free software updates, and integration with Netfile, allowing you to file your completed returns over the Internet.

Both run on any incarnation of Windows, from 95 to XP. But TaxWiz requires a computer with a 133 MHz or faster Pentium processor. QuickTax can run on a PC powered by a lively 486



processor, but it does need a 6X CD-ROM drive (TaxWiz needs only a 4X drive). QuickTax also requires Internet Explorer to function properly, whereas TaxWiz can run on its own unless you want to use Netfile.

Continued on page 36

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Continued from page 35

QuickTax also reserves a list of the most useful features for the more expensive versions. Those who opt for the basic package must opt on priority technical support, extra tax tips, a capital gains analyzer, a range of planners (for RSPS, loans, investment savings, and more), and incorporation analyzer TaxWin. Meanwhile, gets points for allowing unlimited returns, QuickTax limits you to five.

The strength of both packages is the flexibility they offer. The planners allow you to create scenarios and instantly see how they will affect your return. They also include a degree of hand-holding that the online programs can't touch. The CD-based programs cost more than their online counterparts, but if you need the extra help it's worth it.

The online option

The developers of both CD-ROM-based programs have online offerings as well: QuickTaxWeb and TaxWin Online and TaxWin To Go.

At \$29.95 for a single return and \$34.95 for a couple, QuickTaxWeb is more expensive than the box version if you prepare more than one return.

TaxWin Online allows you to prepare two returns for \$9.95. Its developer, TaxWinIt, also offers a unique product for those nervous about disclosing credit and information online or those without a credit card: TaxWin To Go card that can be purchased in retail stores. The card has a number you use—instead of your credit card number—to access the TaxWinItOnline preparation site.

The online programs have some of the features of the boxed software: interviews and planners are standard, and

online help is plentiful, but the multimedia is limited—it's forms and still answers for the most part.

Another online option is Ufile. Experienced users will appreciate the fast load times when navigating the screens (although the initial page takes its time). Ufile also offers a streamlined support site, with advice from tax expert Brian Costello. Ufile costs \$12.95 for a single user and \$39.95 for a family.

All these online programs are Netfile-certified. And all three offer free tax preparation online for those with incomes of less than \$10,000.

For Mac users

A Mac-only option is GriffTax, which is online and on CD-ROM. It's a bit pricier than the Intuit and Taxomatic options and is definitely less flashy than its main competitor, QuickTax.

The manual is only available as a separate download, and the Web site is a barebones order form that lacks the sophisticated help features Intuit offers but it does the job. If you just want to fill out the forms, without the high learning curve the feature-rich QuickTax offers, this is a good choice. GriffTax is also Netfile-certified.

Nothing

All of the programs mentioned here are Netfile-certified, which means you can file a return electronically. The federal government sanctioned tax filing service is free (but you can't file online without purchasing or paying a fee to use an authorized program).

Procrastination note: the window for Netfiling your 2001 return closes June 30, 2002. After that you'll have to print out a hard copy of your completed return, stick a stamp on it, and drop it in the nearest postbox. ☐

Volt-X: a hardware firewall for your drive

Continued from page 34

use to install a CD-ROM or DVD drive. (The company says a floppy drive-size slot will be available soon.) Reconnect the cables to the drive and you're done. The deal has a nice front-panel LED indicator to show you the current mode and status.

You can start with a clean drive, or with your existing drive in its current configuration. On a clean drive, using the boot diskette's install mode setting, you configure the drive with the operating system, applications, and settings you want.

Although upgrading an existing drive may be simpler, I'd recommend doing a clean install and partitioning your drive into system and data partitions. The system partition that Volt-X protects will double in size. For example, enlarging a 5 GB OS partition requires 10 GB of drive space. If you choose to protect the whole drive, you lose half its capacity.

When you're done, use the boot diskette to select protected or live mode. Protected mode provides complete protection against any changes. Each time the system is rebooted, the same unchangeable configuration starts. Although it is possible to install stuff, all changes made between reboots are lost. This means that not even your worst user can screw things up.

Although protected mode may be ideal for family visits, libraries or schools, it presents some obstacles for home users. You must move all of the files that change under normal operation, like your mailbox (.pst) file and favorites folder, from the system partition to the data partition. Finding and making these adjustments is a task that may require expert assistance.

Live mode allows you to keep changes between reboots. With the boot diskette, you can reset to the saved configuration, or update the protected image with the current configuration. Even protected mode users will need live mode to install new applications or devices. Although live mode seems preferable, you may find yourself going back to live or not far enough in your backup file when trouble comes. When you do restore, you'll still need to have backups of things like mail and libraries.

The utility diskette allows you to convert an existing drive to Volt-X, and includes a disk partitioning application. A utility that moved mailboxes and other files and folders would be a welcome addition.

Once Volt-X is configured, it's amazingly easy to use. Restore was simple and fast that the first time I tried it, I was sure something had gone wrong. Within a second—literally—it had restored all of the unemotionally cautious changes I'd made and returned.

I tried Volt-X's single drive solution (which sells for \$139), but dual drive and RAID systems are also available for high-capacity or high-reliability solutions. Volt-X on its own is not a backup solution, and only the RAID version can protect against disk failure.

There may be other ways to accomplish what Volt-X offers, from backup and system restore features of Windows to drive imaging and undoing software applications. However, powerful or useful these alternate solutions may be, though they don't approach Volt-X's ease of use, speed of recovery, or total reliability.

Note: The company's literature says the single drive Volt-X works with any operating system, but later states that it is "currently not available for Macintosh systems." ☐

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Cutting the waves

Continued from page 34

address, charging an extra fee for other connected computers. With the sharing device, you use just one IP address and incur just one monthly charge.

An added benefit is that most broadband-sharing devices include a built-in switch with several LAN ports, allowing you to hook up more than one computer on your protected home network without having to purchase a separate switch or hub.

The newest generation of local-area sharing devices also support wireless networking. Wireless LANs are attractive for a number of reasons, the biggest of which is the impracticality (due to cost, aesthetics, and lease restrictions to name a few factors) to pull the required network cabling from rooms to rooms or between floors in a lot of homes and offices. By including 802.11b networking capability in new routers, computers can be connected to the network with a wireless adapter.

Wireless networking is more expensive than a 320 length of Ethernet cable, but it's faster, more attractive, and goes

connected, users freedom to move a computer from place to place (a big consideration with notebooks). With a wireless link, you don't have to worry about network access when you move your PC to the boardroom for a presentation. Or, for those who work at home, your clients won't know you're returning their e-mail from your notebook while snafing from the backseat or beside the pool.

A wireless 802.11b connection typically allows your PC to link to the network from a distance of a few hundred meters from the access point under ideal circumstances (like an open field). In non-ideal circumstances—like a house or an office, with wood, metal, and concrete obstructions between rooms—the range will probably not be as wide. In our office, we typically had a range of about 30 m, and that's through metal and concrete. You should be able to get a fairly good connection throughout your typical house, and even out into the backyard, unless there's major interference somewhere.

One thing to note: the wireless signal does degrade the farther your PC is from the access point, and 802.11b network.

Continued on page 61

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Year	Number of cases	Number of deaths	Number of survivors
1990	100	10	90
1991	110	11	99
1992	120	12	108
1993	130	13	117
1994	140	14	126
1995	150	15	135
1996	160	16	144
1997	170	17	153
1998	180	18	162
1999	190	19	171
2000	200	20	180
2001	210	21	189
2002	220	22	198
2003	230	23	207
2004	240	24	216
2005	250	25	225
2006	260	26	234
2007	270	27	243
2008	280	28	252
2009	290	29	261
2010	300	30	270
2011	310	31	279
2012	320	32	288
2013	330	33	297
2014	340	34	306
2015	350	35	315
2016	360	36	324
2017	370	37	333
2018	380	38	342
2019	390	39	351
2020	400	40	360
2021	410	41	369
2022	420	42	378
2023	430	43	387
2024	440	44	396
2025	450	45	405
2026	460	46	414
2027	470	47	423
2028	480	48	432
2029	490	49	441
2030	500	50	450
2031	510	51	459
2032	520	52	468
2033	530	53	477
2034	540	54	486
2035	550	55	495
2036	560	56	504
2037	570	57	513
2038	580	58	522
2039	590	59	531
2040	600	60	540
2041	610	61	549
2042	620	62	558
2043	630	63	567
2044	640	64	576
2045	650	65	585
2046	660	66	594
2047	670	67	603
2048	680	68	612
2049	690	69	621
2050	700	70	630
2051	710	71	639
2052	720	72	648
2053	730	73	657
2054	740	74	666
2055	750	75	675
2056	760	76	684
2057	770	77	693
2058	780	78	702
2059	790	79	711
2060	800	80	720
2061	810	81	729
2062	820	82	738
2063	830	83	747
2064	840	84	756
2065	850	85	765
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2069	890	89	801
2070	900	90	810
2071	910	91	819
2072	920	92	828
2073	930	93	837
2074	940	94	846
2075	950	95	855
2076	960	96	864
2077	970	97	873
2078	980	98	882
2079	990	99	891
2080	1000	100	900
2081	1010	101	909
2082	1020	102	918
2083	1030	103	92

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Cutting the wires

Continued from page 41

verted from USB154) Asus! also offers PC Card adapters for about \$240 (converted from US\$165).

Overall, the pricing is a bit steeper than with some other manufacturers, but as Asus! mainly deals with high-end networking products, you're paying for the enterprise-level working expertise. The FriendlyNet products have a one-year warranty.

Belkin Wireless

Cable/DSL Gateway Router F5D6230-2

From: Belkin Corporation
www.belkin.com

Estimated price: \$249



To many, Belkin means cables, but the company has a lot of other product lines, including a networking division with a wide range of offerings. Belkin's Wireless Gateway follows a standard boxy design, but the product is anything but standard. It's very simple to set up, but is also quite powerful. It comes with three built-in 10/100 LAN ports, and adjustable antennae for optimizing your wireless connection. In addition to the standard features you expect on such a device (NAT and VPN, among others), the Belkin access point also allows one DMZ (identified as a port) to be configured, so you'll have external access to that connected device from either side of the gateway—perfect if you want to set up a

mail server or a gaming host.

One of its most attractive features is its price: by stripping off external considerations, like printer and serial ports, it comes in at one of the lowest prices we've seen for a device of this type. Don't better, Belkin's networking products feature a lifetime warranty—very attractive indeed.

If you're already set up a broadband sharing router without built-in wireless access, Belkin also offers an 802.11b Wireless Network Access Point (\$239). The company also offers PC Card adapters (\$135), PCI adapters (\$69), and USB adapters (\$190) for remote computers on your network.

D-Link DI-713P

From: D-Link Systems
http://www.dlink.ca
Estimated price: \$403



Though it's already nearly a year old, the DI-713P is still a good choice for those who want to share a broadband connection and add 802.11b wireless access. The router comes with three 10/100 LAN ports, a serial connection, and a parallel port on the back of the device between the two adjustable antennae. The serial port can be used for dialup modems or ISDN connections, and the parallel connection for sharing a printer between the connected computers. The DI-713P allows you to set up one DMZ device.

Basic setup for the router was easy: we connected to the test bench through our PPPoE connection within a couple of

minutes. The advanced setup screens are a bit more complicated, but the advanced users D-Link is targeting will figure it out pretty quickly. Printer sharing setup is also easy using the included driver CD (we were even able to access the printer using Windows XP).

On first glance, the DI-713P seems pricey, but it is one of the more fully featured units, with built-in printer port and serial ports, as well as DMZ functionality for those who want a bit more. The extra investment is definitely worth while: The D-Link router comes with a one-year warranty.

D-Link also has PC Card adapters for about \$185, PCI adapters for \$210 (which include a PC Card), and a USB adapter for about \$180. If you already have a broadband router and want to add an access point, D-Link's Wireless LAN access point runs about \$335. Possibly the most interesting adapter we've seen, though, for about \$195, D-Link offers a Type B PC wireless card for your PocketPC handheld.

Geek Wireless Networking

Internet Gateway IP0005

From: GNC Technologies
www.gnc.ca

Estimated price: \$275



Geek's wireless gateway looks a little different because its antennae are on the side of the unit instead of the rear. A closer look reveals some other things this device has going for it: four 10/100 LAN ports and one uplink port on the

front and serial and parallel ports on the back. (Any wonder why it has to move the antennae to the side?) It also comes in a nice solid metal case that should stand up to almost any desktop abuse.

Setup of the device is fairly straightforward. The configuration screens are simple, and we had everything up and running within minutes. The only real complaint we have with the device is the physical configuration of the box: with the ports on the front ports on the back, and the antennae sticking out the side, these are things hanging from every direction, which could look a little messy on the desktop. If you can tuck it away somewhere, this won't be an issue.

Geek also offers a PC Card adapter, a wireless PCI adapter for a desktop PC, and an access point, if you already have a broadband router. Geek networking products have a five-year warranty.

Linksys Instant Broadband BEFW1154

From: Linksys
www.linksys.com
Estimated price: \$229



We first looked at this product last May, and it's still holding up well against the competition: it has four 10/100 LAN ports, plus one uplink port, adjustable antennae on the back, and advanced features like VPN support. The router stands on four legs, which allows heat to

Continued on page 44

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Symantec introduces Firewall hardware

Continued from page 109

products offer added security, configurability, and functionality.

The Firewall/VPN 100 features one 10/100 Mbps WAN port and four 10/100 Mbps LAN ports. As long as your hook cables up properly, setup can be fairly simple. The firewall uses DHCP to automatically obtain IP information from the network (if on), or DHCP is available on the network. The firewall will also act as a local DHCP server for any devices you connect through it, and uses Network Address Translation (NAT) and Port Address Translation (PAT).

The firewall can connect to an outside network in several ways, including standard LAN, cable modem, DSL, or even dialup (using the serial port and a connected modem). The unit supports PPPoE and gateway-to-gateway virtual private networking (VPN).

One IP address can be set aside as a DMZ (demilitarized zone) port, allowing it to easily access the Internet and be accessed freely from outside. This is particularly helpful if you want one of your internal computers to be set up as a mail or Web server, but don't want to set up a separate network to do so.

The **FirewallVPN 100** is designed for up to 15 users. Those looking for a high-end-capacity model can step up to the **FirewallVPN 200** (\$1,595), which can handle up to 30 users, has double the WAN and LAN ports, and supports load balancing. Too. With the 2008 model (\$1,855) you can connect to remote VPN clients in addition to having a VPN site.

We dropped the Symantec Firewall VPN 100 off at our IT department to let them put it through its paces. It handled a high-capacity DSL connection just fine, and was exceptionally easy to set up: enter one IP, if your DSL connection doesn't do it automatically, and then you should be ready to go. Most peers with a connection where an IP address is automatically assigned by the broadband modem won't even have to worry about this step.

The configuration of firewall rules was very simple. If you do happen to get stuck, though, help screens are easily accessible and provide you with the information you need to get going again.

If you're looking to set up secure Internet sharing in a small office, this product offers very good value, along with excellent configurability, security, and ease of use. **D**

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Work can be hazardous to your health

Continued from page 48

the cases of problems like carpal tunnel syndrome (CTS) rose substantially. As an example, 1996 saw 3,690 cases of CTS reported compared to 1,306 in 1990. And both Canada and the U.S. report spending more than \$20 billion annually to compensate people making RSI claims.

The high cost of doing nothing

The first signs of RSI/RMI problems are

Ergonomics applied

Seating arrangements

- Adjust chair height so tops of legs are parallel to the floor.
- Back of chair should be adjusted to provide proper lumbar support.
- Proper sitting posture means angle at the hips and knees is about 90 degrees with feet planted firmly on the floor or footrest.

Monitor placement and use

- The computer monitor should be directly in front of user.
- The top of the monitor's viewing surface should be at or slightly below eye level.
- Anti-glare filters should be used to help reduce eyestrain. Also, using larger fonts or a magnified view of a document makes reading easier and cuts down on eye fatigue.

Keyboard

- Keyboards should be parallel to the floor or slightly downward when using a key board.
- The mouse should be as close to the keyboard as possible to avoid over extending the arm. If possible, consider a keyboard with a touch pad or a trackball if desk space is limited.
- When typing, make sure wrists are in a neutral position, and hands and forearms are in a straight line.
- Keep shoulders relaxed and neck in an upright position.
- If you are typing from a hard copy use a document holder to keep it close to the screen and at the right height.

Finally, drink plenty of fluids and take frequent breaks.

—Ben Weinert

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Microsoft JACK Pro V17 product
Microsoft JACK Pro V17 product
Microsoft JACK Pro V17 product
Microsoft JACK Pro V17 product

PC to TV Scan Converters

Microsoft 100

- Realtime display on computer and TV from PC
- Supports all VGA monitors and Windows MAC
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Microsoft ScanMini

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- Microprocessor for processing (VGA to 1024x768)
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- Easy to use and integrate in any system

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- Supports all VGA modes (with horizontal sync up to 1024x768)
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- Easy to use and integrate in any system
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- Easy to use and integrate in any system



Model No. M1-0000

Model No. M1-0000

- Supports all VGA modes (with horizontal sync up to 1024x768)
- Supports all VGA monitors and Windows MAC
- Easy to use and integrate in any system
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Model No. M1-0000

Model No. M1-0000

- Supports all VGA modes (with horizontal sync up to 1024x768)
- Supports all VGA monitors and Windows MAC
- Easy to use and integrate in any system
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Model No. M1-0000

Model No. M1-0000

- Supports all VGA modes (with horizontal sync up to 1024x768)
- Supports all VGA monitors and Windows MAC
- Easy to use and integrate in any system
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SMALL OFFICE TECHNOLOGY >

Work can be hazardous to your health

Continued from page 34

to come in and study the workplace of each employee. An independent consultant can offer an objective view of the situation, as workers often don't realize their work habits could lead to physical damage, or they believe a permanent ache is simply the price of doing the job.

Common mistakes, simple solutions

"Contrary to what a lot of people think, when they hear RML, they are not often significantly related to repetition, but more due to the postures that people work in and how long they work in those postures," says Chris McIntyre, founder of Kitchener, Ont.-based Ergonomics at Work Inc. (www.ergonomicsatwork.com), a service and consulting firm that assesses industrial and office environments. A typical assessment looks first at the equipment.

A common problem is that the basic tools—computer, keyboard, mouse, monitor, and chair—are not set up properly, resulting in back, shoulder, and wrist strain, and more.

"We have to look at the tasks people do every day and how they use all their

equipment," McIntyre says. "A chair can help with lower back support and lower back pain, but it can fail in helping things if one does other tasks in such a way that negate the positive effect of a good chair."



Stress, consider stretch exercises.

Worker has to reach forward and up to use mouse. Solution: Put mouse on keyboard tray or get keyboard with touchpad.

A common mistake in placing the quantity used items just beyond arm's length so that the user has to stretch or bend to reach them when seated. An example of this is placing a phone on a

Continued on page 39

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Access data retrieval

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It's one thing to enter data into a database, but it's often quite another thing to get it out again. Yet that's the purpose of having a database: extracting the useful information it contains. This month we'll look at

several ways to use Access's Query Design tool to extract data. We'll cover the basics of creating queries and ways you can customize output from a query.

For this article, we're assuming you have some basic Access skills and that you can create a table and enter data into it. If not, check out the previous columns in this series ("First steps with Access" and "Relational databases") at www.canadacomputes.com.

To follow the steps in this article, you'll need Access 97, 2000, or 2002. We're using Access 2002, but you'll get similar results using earlier versions (some menu options and choices will be different).

We'll start with all the steps involved in creating a simple query, so you can follow the material even if you're new to Access; then we'll move quickly into more complex examples.

Before you begin

To follow the tutorial you will need some sample data. We'll use the data from the "First Steps with Access" column: it's a simple table but has sufficient detail to create a range of queries.

Take a minute to create a table called *Employees*, with this structure and enter this data into it.



Start the query results by choosing **Records** and **Options** in Query Design view.

Field name:	Employee
Field type:	number
Field name:	Lastname
Field type:	text
Field name:	Lastname
Field type:	text
Field name:	Department
Field type:	text
Field name:	Salary
Field type:	number

Employee	Lastname	Department	Salary
45	Joe	Sales	30000
50	Sam	Sales	35000
55	James	Sales	30000
59	Mary	Sales	35000
57	Nancy	Sales	40000
52	Ruby	Sales	30000

Simple queries

Using a simple query, you can extract specific data like the names of everyone who works in the Accounts department or even more than 500,000. To list everyone who works in Accounts, click the **Queries** option in the Objects list and choose **Create Query** in Design View. In the Show Table dialog, choose the *Employees* table, click **Add**,

then **Close**. You can now create your query using the grid displayed in the Select Query dialog.

Begin by adding each field you want to display in the query results in the grid: to do this, drag each field from the list in the top half of the dialog and drop them into a column in the grid. You can also double-click a field name and it will move there automatically. (It is possible to add all the fields by dragging the asterisk (*) entry but you should avoid doing this as you can't later specify individual criteria for the fields.)

To list everyone who works in Accounts, type *Accounts* in the Criteria line under the Department fieldname and press the Run button (it has an exclamation mark on it) to start the query.

You can sort query results by clicking on the heading for the field you want to sort, then clicking either the **Sort Ascending** or **Sort Descending** button on the toolbar. Return to the query design view by clicking the Design button in the toolbar.

Making your query more general

This query, while useful, would have to be altered if you wanted to, for example, extract the names of people who worked in the Sales department. Ultimately it will be more useful to create a query that prompts you for the department name, then shows the employees in that department. This is called a **Parameter Query**.

In this case, remove the word *Accounts* under the Department fieldname and, in its place, is the Criteria area type **[Type Department name]** (including the square brackets) from the query.

Continued on page 62

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Access data retrieval

Continued from page 32

and also extra less than \$50,000.

Do this by altering the previous query. Remove all the criteria from the Criteria line, then in the Criteria cell for the Salary field, enter >=100000 and <200000.

Run the query and you'll find there are two matching entries. Because you've specified between \$100,000 and \$200,000, you haven't included everyone who earns those exact amounts. To extend the search to include anyone who earns \$100,000 or more and \$200,000 or less, alter the criteria to >=100000 and <=200000. Run this query and you'll see four matching results.

You can combine this new knowledge with a parameter query to create a parameter query for multiple criteria. For example, to extract the names of those with salaries between certain figures (and including those figures), enter this into the Salary field below: Enter <= [Enter] (Type salary) and >= [Enter] (Type salary).

Top entries

Sometimes, you'll want to extract data on the basis of its position in an ordered list of data—you want to know salaries

of the five highest paid employees without having to know what those salaries are, for example.

To do this, begin with a new query and add to the grid all the fields that you want to display in the query results. Locate the Top Values button on the toolbar (it looks like a bar chart with five bars). Click it. It will be displaying the word All. Click the drop-down list and choose the number 5 to display the top five entries in the database. Now return to the grid and locate the Sort line. In the Salary field, click the Sort line, then select Descending from the drop-down list that appears. This orders the data from largest to smallest salary so the top five names will be those with the highest salaries. Click Run to start the query.

From this dialogue you can also choose a percentage of values rather than a new number. The percentage options offered would display the top five percent or 25 percent, but, don't be lulled into thinking you're limited to the values in the list. You can request the top two entries, by typing 2 in the box. If you want the top 50 percent, type 50%.

Before you leave the Top Values list, click on page 34.

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iMacs do well in value face-off



At press time for the last issue, Apple updated its line of G4 towers rather unexpectedly and with little fanfare. This issue, we've had some more time to look at the line and assess

what's new and where the value is.

The new models are as follows: \$2,549 buys an 800-MHz G4 processor with 256 MB RAM, 40 GB hard drive, CD-ROM drive, and a 32 MB Radeon 7500 video card; \$3,999 buys a 930-MHz G4 processor with 256 MB RAM, 2 MB of Level 3 cache, 60 GB hard drive, a SuperDrive (DVD-R and CD-ROM), and a 64 MB nVidia GeForce 4MX video card; \$4,799 buys the top-of-the-line model, which has a pair of 1 GHz G4 processors, with 512 MB RAM, 2 MB L3 cache for each processor, an 80 GB hard drive, a SuperDrive, and a 64 MB nVidia GeForce 4MX card. All of the new G4 Desktops have two USB ports, two FireWire ports, a digital Ethernet, and an internal 54-kbps modem.

A couple things stand out here that



bear mentioning: the prices of the new models relative to the previous lineup and the video cards. Price wise, Apple has broken a price structure that had been in place since the blue and white G4s were released in January 1999. The established price structure was always US\$3,999 base, US\$2,499 middle, and

US\$3,499 at the high end. This new price structure starts again at \$1,999, but knocks US\$200 off the middle and US\$300 off the high end. A few months ago Apple made a similar change to the pricing of its PowerMac line. It's good to see Apple adapting to these tough

Continued on page 67

Palm OS 5 beta debuts

Security, multimedia support, speed tweaked in new release, developers say

SAN JOSE, Calif.—Palm (www.palm.com) unveiled its new operating system in early February, touting it as the basis for faster handheld devices that it hopes will light a fire under the mobile computing market.

PalmSource (www.palmsource.com), Palm's operating system subsidiary, previewed the OS 5 beta at a company conference following the announcement. Final delivery of the software to licensees is set for this summer, the company said. "Palm OS 5 will be the foundation to build a new class of devices that will help make mobile computing ubiquitous," Palm said in a news release.

The new operating system will step up performance, tighten security, and add multimedia support, such as the capability to record and play back digital audio for better sound quality on mobile devices.

The system, which supports ARM-compatible processors, is also compatible with existing Palm OS software programs, the company said.

"Our compatibility strategy enables developers to target upcoming Palm OS 5 devices as well as the over 20 million existing Palm-powered devices," PalmSource products chief Steve Saksanen said in a statement.

Palm licenses its operating system to other handheld manufacturers, including Handspring, Samsung, Sony, and Acer.

Last year Palm split into two units, one to design handheld products and the other to develop the operating system and license it to other companies.

—Newswires

Real intros mobile streaming platform

CANNES, France—Internet streaming-media company RealNetworks (www.realnetworks.com) has unveiled a number of software applications for streaming audio and video into wireless connections and playing it back on handheld computers and some of the latest digital phones.

The Seattle, Wash., company chose GSMWorld in Cannes, France, in late February, to officially launch what it is calling RealSystem Mobile, the wireless version of the RealSystem G2 platform it currently sells to multimedia Web publishers and Internet service providers.

RealNetworks also unveiled a version of its RealOne Player for mobile devices like personal digital assistants and phones.

RealSystem Mobile includes server-side software for delivering compressed audio and video over advanced 2.5G and 3G cellular phone networks, which still offer relatively sluggish bandwidth compared to broadband-based broadband connections.

The company is also targeting mobile carriers with its RealSystem Mobile Gateway, which gaps between wireless networks and the rest of the Internet, caching content to reduce the burden of what publishers and carriers hope will be high demand for music and video from consumers on the road.

RealNetworks also unveiled a version of its RealOne Player for mobile devices like personal digital assistants (PDAs) and phones.

The company and its server and play-

Continued on page 73

Mac's do well in value face-off*Continued from page 66*

times, when very few computer makers are actually making money.

The other connecting aspect of the new G4 is its video performance: all three models offer dual-monitor support out of the box.

Apple hasn't placed much emphasis on dual-monitor support in the past, but we think it's a good feature to build in, and one that many people will appreciate once they've tried it. The other interesting graphics change is that ATI video cards are available again, which shows Apple is pulling away from making iMac's the only graphics card choice available to Mac users.

The question remains though, now that the iMac line is powered by a G4 processor, how is the 15-inch iMac, and a SuperDrive, how do the PowerMac measure up?

Let's compare the base models of each line, which are perfect for home use or entry-level graphics and digital video tasks. The base model iMac has a 700 MHz G4 processor, 128 MB RAM, 40 GB hard drive, 32 MB video card and 85-inch LCD, all for \$2,499. A base model PowerMac gives you an 800 MHz G4, 256 MB RAM, 80 GB hard drive, 32 MB video card, and no monitor for \$2,549. Both include internal CD burners and neither has a Level 3 cache (which can improve performance by 10 to 15 percent, depending on the task). In this match-up the iMac is a clear winner—especially if you add a same 15-inch Apple LCD to the tower, which adds an extra \$900.

What is the best value if you want to go into DVD burning? On the iMac side it's \$2,899 for an 800 MHz G4, 256 MB RAM, 80 GB hard drive, 32 MB video

card, Apple Pro Speakers, 15-inch LCD, and SuperDrive.

On the tower side it's \$3,699 for a 933 MHz G4, 256 MB RAM, 2 MB Level-3 cache, 80 GB hard drive, 64 MB video card, and a SuperDrive. No speakers or display are included, yet the tower is \$800 more.

In this case, the tower has an edge with the performance boost it will get with the Level-3 cache, and the video card is twice as powerful. The iMac is still the better value though if all you are concerned with is DVD burning, as it will do the job splendidly and you have money left over to buy a digital video camera.

Why are we making this comparison? It's true the G4 is more expendable, and many business users will still buy G4s for their more flexible configuration options, but we can't help but think that since Apple started putting G4s in iMacs, it's put more pressure on the tower line. What Apple needs is an entirely new tower, ditching the three-year-old design and starting fresh, as it did with the iMac.

Giving the towers a radical new case design, faster bus, DDR RAM, and making dual processors standard will again make the professional and consumer lines more distinct.

Geforce 4 Titanium

NVIDIA, one of the largest video card manufacturers, recently unveiled a new top-of-the-line graphics processor that represents the pinnacle of 3D graphics performance (at least for the next six months). The Geforce 4 Titanium is based on an entirely new chip architecture and is not related to the Geforce 4 MX in the new PowerMacs, towers.

The Geforce 4 Titanium comes with 128 MB of high-speed DDR RAM onboard, and it is the first AGP video

card ever to support dual Apple digital displays (an optional adapter is required for the second display). The specs on the card include a 300 MHz core processor and 128 MB of 680 MHz DDR RAM, capable of 10-Gbps-plus throughput and displaying 87 million polygons per second (or 4.9 billion textured pixels per second).

This card, at least on paper, is more than three times faster than the Geforce 4MX card that ships in the current G4 tower and the Geforce 2MX that ships in the current iMac line.

All this power comes at a price, though, and what a high price it is. The quickest way to get your hands on a Geforce 4 Titanium is to buy a new PowerMac from the Apple Online Store. If you buy the 880 MHz model, upgrading to a Geforce 4 Titanium will cost you \$540 if you buy the 933 MHz or dual-15-GHz models, the build-to-order option is only \$400.

Apple has plans to make the card available to owners of existing G4 towers for a higher price (it hasn't been announced).

Continued on page 69

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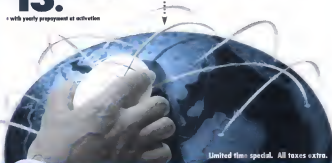
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Must do well in value face-off

Continued from page 69

on TCP/IP, these killer packets could be broadcast to an entire network, potentially affecting dozens of users. The update fixes the way this protection works, although Microsoft is not specific as to how. If you use Office 2003, it's a good idea to install the update. You won't notice any differences in the apps themselves.

Mac OS 10.3.3 update mostly bug fixes

Although it's not big news, Apple has updated OS X again. The new version, to 10.3.3, adds support for more CD burners and digital cameras, fixes some graphics bugs, and improves stability to some of the underlying core system. We didn't notice much of a difference after installing it, but we didn't notice any new problems either, so it seems safe to proceed.

The big update for OS X users will be 10.3.4, due sometime between May and July. This update will add features from OS 9 that users have requested, including spring-loaded folders (something we are very excited about), in the meantime,

you can get 10.3.3 from the software update panel in OS X, or from Apple's Web site.

New iMac animation

Apple chief Steve Jobs' other company, Pixar Animation Studios, has released two rather cute animated trailers for the new iMac.

The clips are 15 and 30 seconds long, and are available in three file sizes (depending on the speed of your Internet connection). They're quite good, but we think it would be great if Pixar did a full 60-second piece, which Apple could use for its television advertising. Currently, these shorts are for the Web only; you can view them yourself at

www.apple.com/leaders/rdm/lewiner.html.

Shockwave Player for Mac OS X

Mac OS X users can finally enjoy both Flash and Shockwave (www.shockwave.com) content on the Web now that Macromedia has released an OS X native Shockwave plug-in. Since Macromedia has already released a Windows Media Player plug-in and QuickTime is built into the system, the only major Web media that doesn't support OS X is *RealPlayer*. A version of *RealPlayer* for X is, unfortunately, not expected until summer of the next year.

Tinker Tool 2.1

This just released update makes a very

useful OS X utility even better. Designed to work in 10.1 and higher, it integrates into the standard System Preferences window and offers many options Apple left out of the OS.

Ever wanted to control the location of the window arrows in OS X like you could in OS 9? Tinker Tool gives you the choice of setting them both at both ends, one at each end (OS 7 style), or both at only one end (the OS X default). This software also gives you more options for controlling dock behavior, including left, right, and center alignment. Other system settings that can be tweaked with Tinker Tool include font smoothing, desktop picture placement, and Terminal transparency.


In all, it allows you to tinker with all categories of system settings, making it a must-have utility for anyone who really wants to make OS X their own.

The best part, though, is that Tinker Tool is free and small enough for everyone to download. You can download it at Version Tracker (www.versiontracker.com/) or directly from Marcel Brinkmann Software Systems (www.brinkm.com/usa/tinker_tool.html).


Continued on page 72

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
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Real enters mobile streaming platform

Continued from page 68

er as well as its content creation tools will support the H.263v2 and MPEG-4 standards for compressed video.

The H.263 family was designed by the International Telecommunications Union (ITU) for streaming-video applications like videoconferencing, and the earliest encoders had been supported by RealNetworks' software for some time. However, many content producers would prefer to use MPEG-4, designed by the Moving Pictures Expert Group, because it promises better support of digital rights management for both audio and video.

RealNetworks announced MPEG-4 support in its RealSystem iQ platform earlier this year.

A week earlier, RealNetworks said it was working with Telecom Media Networks, an arm of the marketing firm Cap Gemini-Tremblay & Associés, to help Cap Gemini become a one stop provider of technology and advice to carriers and publishers planning to offer mobile multimedia content.

—Newdyes

Microsoft unveils wireless desktop



Microsoft Corp. (www.microsoft.com) has introduced a wireless keyboard-mouse combination to its line of desktop peripherals.

The five-button Wireless Wheel Mouse and Wireless Keyboard interact with a receiver via two-channel radio frequency technology. They will operate up to 1.8 m (6 ft.) from the receiver, according to Microsoft. Its uncluttered line of sight to the receiver is not required. The devices require Windows 98, Me, or Windows XP and a PS/2 port.

Like other Microsoft peripherals, these came with anti-ErgoType five keyboard and IntelliPoint mouse software, which offer fast smooth scrolling (in the case of the mouse) and allow users to assign mouse and keyboard buttons to frequently used functions.

The full desktop is available for \$204.95. The wireless mouse can be purchased separately for \$34.95.

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Java to the Web



Most programmers who use Java cite its simplicity or ease of use for developing sophisticated object-oriented (OO) and Web programs. Even Microsoft has thrown its towel and acknowledged the power of Java—not by adopting it, but by creating a clone of Java with C# and using the Java syntax as the template for its .Net framework.

One of Java's key strengths is its versatility. Users can develop programs that can run on a mobile phone, PDA, Internet browser, PC, or large server.

Most of that code will not have to change as it (and the GUI or presentation code that does need to change becomes more standardized). This platform independence, or interoperability, is supported by several runtime delivery models. Java programmers can create

applications that run in Web browsers or applications that run on PCs or servers. And it can be, these server applications can become handy compiled executables.

But perhaps the most important virtue of Java is its guided programming models. For example, developers can program for the Web in four increasingly sophisticated ways.

Using Java applets: Where the Java code is downloaded or resides on a user's PC or PDA and usually executes through a Web browser interface.

Using Java servlets: Java code runs on a Server invoked transparently in HTML browser pages. This model provides for the possibility of extra server resources, such as multi-processor computing power, large memory and fast bus speeds, numerous disk drives, plus fast access to huge databases. These and other resources can then be made available to the PC or mobile PDA, over the Web in a very efficient mode of operation.

Using JSP (Java server pages): This allows developers to embed Java-like commands right into HTML pages. The

code is dynamically translated into Java servlets back at the server. JSPs allow for more rapid development of Java servlet applications.

Using J2EE (Java 2 Enterprise Edition): The Enterprise Edition, and its Enterprise JavaBeans technology, adds the ultimate sophistication in Java applications: role-based security, dynamic scheduling of multiple tasks sophisticated independently running agents, and very reliable backup and recovery for such systems.

In the next few paragraphs, we'll alternate between these four major uses of Java and the underlying utilities and resources needed to program effectively in each domain. We've laid the ground work in previous tutorials on exceptions and threading (those can be found online at www.java.com/compuls.com).

Java applets

Some critics would have you believe that Java applets are vestigial organs, relics used and rapidly going out of favour for technical reasons. Not so—the only

"technical" argument against Java applets is that Microsoft, which controls 85 percent of the browser market, is making it increasingly difficult to use Java in Internet Explorer (IE). But has has a very useful IE plugin that increases the speed of Java applets run in IE, and other browsers, such as Opera and Netscape, support Java directly.

Java applets continue to prosper. Many of the major enterprise vendors—such as Cognos, ID Edwards, Peoplesoft, and Siebel—use Java applets running in a browser to deliver key corporate systems. If you play cards or other games online it also like Lycos and Yahoo, you are running Java applets.

And, as it turns out, the Java applet coding structure is simple enough to attract developers—especially for applications delivered by Web browser to PC desktops, PDAs, and cellphones. Here is that basic structure: `import java.awt.*; import javax.swing.*; public class myApplet extends JApplet {`

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order through the Pioneer card's FireWire port, and also several samples of analogue video using both an iMac camcorder and a VHS player connected to the iMac. The analogue-to-digital processing was excellent, with no dropped frames in any of the one and two-minute samples, even at the highest 720i/60 capture settings—although that higher setting can't improve the inherently lower quality of the source footage.

We have a couple of notes with the

Continued on page 82



The new tool for iMovie-a capture utility that comes with iMovie DV66 Plus—includes almost menus for a variety of settings.



The iMovie HD app includes a library of test effects. Just type in your title and apply the effect.



"iMovie HD" lets users, through a Pioneer FireWire decoder, to the first video clip.

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Mid-range video editing

Continued from page 81

predict. First, we were unhappy that the cards' FireWire ports support only DV devices. You can connect a DV camera or deck to them, but not other devices such as FireWire hard drives. We learned this from Panasonic's knowledge base after some frustrating attempts to connect two different FireWire drives.

A second minor issue is with the dialogue on the capture utility. To start capturing footage, you hit a red record button onscreen, and to end the capture, you hit the **ex** key (but the onscreen message says "hit **ex** to abort," which is totally confusing).

Overall, however, working with the DV500 Plus has been fun. The additional software is well integrated with Premiere, and the TimeDido character generator and HollywoodIX transitions and effects generators add sparkle to Premiere's toolkit. □

Video editing on your notebook

Add a FireWire port and video-editing software and you can be a roving movie maker

By David Tanaka

If you want to do field work with a digital video camcorder, you might be attracted to the newest generation of Mac—and some PC—notebooks, with their built-in FireWire ports.

IEEE 1394 PC Card Interface Adapter FireWire (Firewire drive enclosure)
From: iMac Connecting
www.imac.com
Price: \$29.95 (PC Cards less than \$99 [drive enclosure])

But, for less than \$230, owners of

older notebooks can join the digital video ranks too, thanks to the Luma FireWire card, a PC Card that adds a 1394 interface to your notebook. Add video-editing software [we found that both iMAGI VideoSuite 5.0 and Adobe Premiere 6.0 worked with the card] and you're set.

One of the added benefits of FireWire is that you can also supplement your existing notebook computer's drive with an external FireWire hard drive. We tried out Luma's FireDrive enclosure. It is basically a shell with FireWire-to-IDE adapter, to which you add your own 3.5-inch hard drive.

FireWire transmits data at up to 400 Mbps. So far, there are not many computer peripherals based on FireWire (primarily external hard drives), but digital camcorder manufacturers have widely embraced 1394, and it's now the de facto standard in that industry (some high-end digital still cameras also include a FireWire connector). Simply put, if you are into digital video, you will want FireWire on your computer.

Luma Computing's FireWire card is known simply as the IEEE 1394 PC-Card Interface Adapter. The Type II PC Card ships with two cables (a six-pin FireWire cable and a four-pin FireWire cable).

Continued on page 84

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Building a MAME arcade cabinet

Part 4: Selecting buttons and joysticks

By Keith Schengili-Roberts



So, by this point in the process of creating my own MAME (Multiple Arcade Machine Emulator) cabinet, I knew what I wanted, but now I had to get it, and then I had to make it work—which is where the real work started.

Buying components: arcade buttons

Buying the arcade buttons and joysticks was relatively easy, since the people who sold me the surplus arcade casing (Toronto Case Machine Factory, online at www.pc1sales.com/), had all of the necessary buttons, joysticks, and other controls I needed.

But I still wanted to do more research, to ensure I had the right type of buttons and joysticks, and to be certain I could connect them to the computer easily.

It turns out that there are three important types of arcade buttons: standard buttons that contain lights, and others that may have 1 Player or 2 Player icons etched on them.

What makes them functionally different is how they convert a player's tap into an

electrical signal. The earliest arcade games like *Space Invaders* used a simple metal switch mechanism—when the button is hit, it closes a circuit at the bottom of the plunger, essentially bringing together the ends of a metal V that lies on its side. This arrangement led to buttons that had to be replaced frequently due to metal fatigue in this V spring.

In subsequent buttons, designers replaced this strip of metal with a microswitch. When this type of button was pressed, the plunger hit a little plastic nub on the outside of the microswitch unit, which then closed the circuit. Microswitches could take more of a beating than their predecessors, and when they did wear out, usually only the microswitch needed replacing, rather than the whole button unit.

There are two versions of microswitch-enabled arcade buttons available: one with the microswitch aligned vertically with the button, and the other horizontally (i.e. on its side). Each is rated for more than 10,000,000 hits, so you're likely to get carpet-burned syndrome before wearing

Reading your own Web site

IE extensions to CSS: Part 4

By Keith Schengili-Roberts

Beginning with Internet Explorer 4.0, Microsoft added a number of programmable visual filter and transition effects to its browser. These effects can be added either programmatically (via JavaScript) or by adding CSS elements to a given Web object.

In practice, filters and transitions have been used relatively infrequently on the Web, as their display properties are unknown to Internet Explorer, and the effect can be so dramatic that a page must be viewed using Internet Explorer to be visible—in other words, it is not browser-compatible code. Having said that, if you are confident that your audience is composed largely of Internet Explorer users—say, users on a corporate intranet—or you are willing to customize your code on a browser-by-

Continued on page 88

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Careers & Training

.IT Career Trends • Productivity Tips & Tricks • Book Reviews • Tutorials

Technical writing and beyond

By Shariene Myers

Unfortunately, for many people, this scenario is familiar: In an effort to help employees do their jobs better, a company purchases a software package and installs it on their PCs. But many of the employees the software is supposed to help can't figure out how it works, don't understand the manual, and don't get the training they need. Productivity goes down instead of up, and with it, employee morale.

Chris Ross's job is to make sure this doesn't happen with the software his company develops. Clenary Software makes student information systems for schools and school districts, and says it is used by more than one million educators every day. Chris is responsible for the department that designs the user interface, writes the manuals and instructions, and trains users on getting the most out of the software.

It's a position that has evolved, so he



Career Profile

Name: Chris Ross

Title: Director of customer solutions and education
Company: Clenary Software, Barnaby, B.C.
www.clenary.com

has moved from writing instructions to trying to make those instructions less necessary by making the software easier to use.

He sat down with TCP recently to discuss the evolution and what his job involves. Following is an edited version of that conversation.

TCP: How did you get here? What sort of experience and education led you to this position?

CR: I did my master's in English in '80 and '81 at the University of Waterloo. I didn't know what I wanted to do when I grew up, so I was in the English program and this tech writing was still kind of in its nascent stages back then. I'd heard about it and thought, "Wow, there's going to be work in there that fits."

My other dream was to get more involved with marketing—writing copy and doing that sort of stuff.

But this tech writing thing seemed more pleasing to me. I was somewhat

Continued on page 93

Easy steps for PHP beginners

By Keith Schenff-Roberts

PHP is a cross-platform, open-source scripting language designed for the Web. It's popular, it's relatively easy to learn, and it's free—three factors that would seem to guarantee its popularity. While there is good online documentation available, what's really been lacking are good introductory texts on the language. This book goes a long way toward filling that gap. If you want to learn this language, *PHP4: A Beginner's Guide* is a good way to start.

PHP4: A Beginner's Guide

Author: Bill McEtyre

Publisher: O'Reilly

www.oreilly.com

ISBN: 0-06-303276-6

Softcover, 361 pages, 2001

Price: \$49.95

Rating:

Information content: ****(2)

Usability: ****

Intended for: Beginner

Overall Rating: ****

Continued on page 95

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Technical writing and beyond

Continued from page 92

interested in technology, because I played in a band at that time, and we were dealing with drum machines and sequencers and all that stuff moving towards a computer.

No one wanted to teach the tech. writing courses. So I put my hand up and said "Sure, bring on, on, I'll do it!" And they were so happy that I got all the tech writing courses thrown my way. So I had to learn it to teach it, and that was sort of my lousy idea at first.

When I was done, I left Winneto to come to Vancouver. It was really tough back then—there was not the plethora of tech writing jobs at that point. They would come up, and because I didn't have any experience I wasn't getting them. But then, in '93, the door opened a little bit and by '94 the door just blew right off the hinges and that's when the tech-writing jobs came out. So that's when I started.

I see everything in life as communication. And to me the interface is another form of communication. That was the next step from words, so I started study-

ing interface design, and looking at that as a communicative media. I got more versed in that, and the good thing about

I joke that a tech writer should get paid by the word not written—this isn't Dickens' days. The more you can liposuction out of a doc, the better.

working here was they were saying "Hey, dude want to do it? Go do it, it's yours, run, be free."

I got to work with the program manager, starting with the error messages, then getting into the navigation and the overall architecture of the product based on task analysis and audience analysis. From there, they realized that having human-machine interaction experts was a good thing, so we built a department there. We started with tech writers, then we got UI (user interface) designers—or usability specialists—thrown in, and then I had training thrown on to me as well, because that's the next step.

This is a really unique place to be. I'm in charge of the tech writers, the UI people, the training folks, both the instructional designers and trainers, and what we call the customer relationship team. Here, anything the customer reaches after they buy the product is managed by one group.

TCB: What's a typical day for you like?

CB: [Laughs.] Schizophrenic. We're only a couple hundred people, so there's not those rigid barriers. Given that I've been here so long, I know a lot about the customer, I know a lot about the product, I have a lot of knowledge that helps with other decisions that are made throughout the company.

Right now I'm working on an RFP [reply for proposal]. I've never done that before. A school or district or state puts out "We're looking for a student management system—here's a whole bunch of questions." They send it to a bunch of vendors. All the vendors type up voluminous documents answering all these questions, and then they go and see who gets invited to the next dance. They shorten a bunch of vendors, and then you go to your dog-and-pony...

> CAREERS & TRAINING >

But given that schools are getting more specific in what they want, and given that the organization has grown, there's all three hats of knowledge required to answer an RFP. That one was writing on now. There's a whole attachment dedicated to implementation and training.

It takes a lot of horsepower to go through that, and typically there would be someone in sales that could do a whole thing for a smaller enterprise, but this is a big one. [so] you need to have the experts around write that part, come up with a training plan, come up with a deployment plan.

So a typical day? I really can't tell you. It depends on the priorities and what emerges that day, and gives that we're very customer-centric, it depends what needs have emerged for the customer.

TCB: How much time do you spend collaborating with your team and how much time working on your own?

CB: Probably 90/10. A lot of my day is talking, and it's only 10 percent in doing email, which is a form of talking, and then actual writing. I went to school to

Continued on page 94

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Duckens' days. The more you can lipo suction out of a doc, the better.

TCF: What do you like to do in your spare time?

CB: Music. I don't play music anymore, but to me music is like the Renaissance. If you look at—before MP3s—the CD or the album, you love words, you've got music, and you have art. And then, in some cases, you have fashion, so it's very pop cultural, if that's a word.

Pop culture, I think, is phenomenal. I don't need Shakespeare. Marilyn Monroe is just so cool to me. "Cause within three you have social commentary, you have critique. Same with TV, but I don't want to watch that much.

I like the world around music. I like to go out. I like to work, but I don't love to work. I work to live, but sometimes that gets blamed. Going out, hanging, talking—I love to talk.

If anyone's quick-witted and you can just get that verbal jousting going, you know, it's like "Och you got me there, keep playing like that." I don't know just fun-loving. ☐

Easy steps for PHP beginners Continued from page 92



This book comes across as a definitive textbook on learning PHP. Considering its author—Bill McWhorter, an associate professor at Azusa Pacific University in California—that observation is not far off the mark. The subtitle says this book teaches "essential skills for first-time programmers," and that's a fair claim: the author really does not assume any previous programming experience. As a result,

it takes a very easy approach to its subject, methodically making its way through such PHP fundamentals as operators and functions, using PHP in forms, programming using if statements, and more. The book goes on to cover more advanced topics as well, such as setting and retrieving cookie values, accessing and using database information, plus teaching effective ways to debug your code.

I like the approach taken in these "Beginner Guides" by Osborne, clearly defined modules (chapters) that cover a specific topic, "One Minute Drills" that provide a mental check that you actually understood what you just read, and "Mystery Objects" at the end of a module to assure that everything has actually sunk in.

Though not written expressly as a textbook, it wouldn't take much of a stretch to see this being used as one. Still, the approach is aimed at people who find that they learn best by actually writing and playing with code. Since PHP is specifically designed for the Web, it is hard to come up with sample code for which some use cannot be found in real life. So the code examples in the book tell you build every-

thing from relatively simple page counters and basic form processing, to dealing with cookies, to more advanced but necessary tools as working with SQL databases, using application templates, and more.

There's just enough here to get the beginning PHP coder up and running quickly. The only potential problem with this book is that it does not necessarily make for the best reference on PHP. For example, when I was trying to look up particular functions on a couple of occasions, if I could find it easily, it did not necessarily have all of the background info on the function available at my fingertips. Perhaps one shouldn't expect that from a book aimed squarely at beginners, which this is, but still I would have appreciated a more robust PHP reference than is provided.

PHP: A Beginner's Guide is an ideal primer for these people who are getting started with this Web scripting language. People who have experience with other languages may find this a bit too simple, but if you are a real programming novice and you want to get a real feel for learning and playing with PHP, this is the book for you. ☐

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Analogue, digital, and in between

Continued from page 85

That's why digital video (DV) is so attractive. Recorded digitally onto compact DV or MiniDV tape, it's as if you've already captured everything—through the camera's computer, not yours. So rather than make your PC or Mac do all the work of digitizing a stream of analogue video, all you have to do is transfer from the camera to the computer through an IEEE

1364 (also known as FireWire or i.Link) port. At the very least, you get full-frame, full-motion video and CD-quality sound onto your computer without having to tax your hardware. At best, you can take advantage of such features as automatic timescode-dropping, camera control from your computer, and i-camera editing.

But what if you want to capture your analogue footage as a 720x480, 29.97 fps video clip without dropping frames—say, for transferring to DVD? One solution is to

copy everything over to DV as an intermediate step, which of course gives you all the benefits of DV as a bonus. But considering the cost—DV cameras start at around \$800, and a one-hour tape is \$10—would be justified in her career.

Another solution is Bartle's Hollywood DV-Bridge, a device roughly the size of a small paperback novel and half the price of the cheaper DV camera. It has five jacks in front (input), and five in back (output): composite video, S-Video, stereo

a. *ad. and H. ad.*

The upshot is that you put digital or analogue in and get digital or analogue out. Fractally speaking, that means you can hook up your VCR to the HiLevelwood DE-bridge and connect it to your FireWire port, fooling your editing software into thinking it's connected to a DV camera. You don't get the extra advantages of DV, but you do get high-quality captures at a reasonable price.

—James Thompson, 1904



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John Nash's Home Page
 (If you have seen the movie *Beautiful Mind* and have an itch to learn more about its middle inspiration, Princeton University's John Nash, visit his home page. However, much like his work, this site is not for the mathematically squeamish. With little fanfare, it displays papers and subtheorems full of unannounced calculations and nomenclature. Nash says his current research interests include logic, game theory, cosmology and gravitation.)
www.math.princeton.edu/~joh

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About your business: Industrial sector you work in (by manufacturing): _____
 No. of people working at your location: ☐ sole proprietor ☐ 2 to 5 ☐ 6 to 10 ☐ 11 to 20 ☐ 21 to 50 ☐ 51 to 99 ☐ greater than 100
 Is your location a sub-office of a larger company? ☐ Yes ☐ No
 Annual revenue: ☐ less than \$400,000 ☐ \$400,000 to \$699,999 ☐ \$700,000 to \$1 million ☐ more than \$1 million

Part 2 Hardware

Which types of hardware do you have at your facility, or intend to purchase or lease in 2003?

Computers	Yes, owned	No, leased	Will buy in 2003	Will lease in 2003
Windows desktop computer				
Windows notebook computer				
Windows server				
Windows client				
Unix/Linux server				
Unix/Linux client				
Other equipment				
Scanners				
Printers				
Modems				
Networks				
Storage devices				
Peripherals				
Other				

Networking

Do you have a network or networks installed? ☐ Yes ☐ No
 If "Yes", which network operating system do you use?
☐ Windows ☐ Netware ☐ Novell ☐ Linux
 Have you installed or do you intend to install an ISDN interface LAN? ☐ Yes ☐ No
 Security: _____

Do you use or intend to use hardware security devices?	Yes	No
Access control		
Access control		
Access control		
Access control		

Do you physically access computers and office equipment?
 Cable locks: ☐ Yes ☐ No Other physical devices: ☐ Yes ☐ No
 Biometric devices: _____

Do you use or intend to use hardware security devices?	Yes	No
Access control		
Access control		
Access control		
Access control		

Part 3 Software

Which operating systems are used at your location? (Check all that apply)

- ☐ Windows 9x ☐ Windows 2000/NT
☐ Macintosh ☐ Novell Netware
☐ Linux ☐ Other _____

Please indicate which software applications you own or intend to purchase

Personal Software	Yes	Intend to buy in 2003
Small business accounting		
Finance management		
Inventory		
HR/Personnel		
Office suite		
Desktop publishing		
Graphics (design, editing, illustration)		
Industry-specific (e.g. shipping, fleet, supply, etc.)		

Part 4 Services

Internet/Intranet

Do you use or intend to use Internet services?	Yes	No
Computer 101		
Business 101		
Customer Call Center		
Customer Call Center		
IT or other IT		

Do you have multiple computers connected to an Internet during down time? ☐ Yes ☐ No
 Do you have a business web site? ☐ Yes ☐ No
 If yes, is it under way or a priority for 2003? ☐ Yes ☐ No
 If yes, what is the URL? _____
 Do you have a business capability? ☐ Yes ☐ No

Other services

Do you have a business building account? ☐ Yes ☐ No
 Do you have a business credit card? ☐ Yes ☐ No
 Does your business participate in loyalty programs (e.g. Air Miles)? ☐ Yes ☐ No

Online services

Which online services do you intend to use?	Yes	No
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AD INDEX

Computer Books

Acad Ebooks	80	IT Technology	48
OS/2 COMPUSER	84	IT/IT Computer Canada Inc.	85
History Encyclopedia	25	Infoview	85
History Encyclopedia	25	Intelligent Nations Inc.	78
History Encyclopedia	25	ITC The Intelligence	84
History Encyclopedia	25	ITC Computers	87
History Encyclopedia	25	Net Computers	86
History Encyclopedia	25	Net Computers	86
History Encyclopedia	25	Net Computers	86
History Encyclopedia	25	Net Computers	86
History Encyclopedia	25	Net Computers	86

CD Rom

CD Rom	81	IT Technology	48
CD Rom	81	IT/IT Computer Canada Inc.	85
CD Rom	81	Infoview	85
CD Rom	81	Intelligent Nations Inc.	78
CD Rom	81	ITC The Intelligence	84
CD Rom	81	ITC Computers	87
CD Rom	81	Net Computers	86
CD Rom	81	Net Computers	86
CD Rom	81	Net Computers	86
CD Rom	81	Net Computers	86

Events

Events	81	IT Technology	48
Events	81	IT/IT Computer Canada Inc.	85
Events	81	Infoview	85
Events	81	Intelligent Nations Inc.	78
Events	81	ITC The Intelligence	84
Events	81	ITC Computers	87
Events	81	Net Computers	86
Events	81	Net Computers	86
Events	81	Net Computers	86
Events	81	Net Computers	86

TCP Services

TCP Services	81	IT Technology	48
TCP Services	81	IT/IT Computer Canada Inc.	85
TCP Services	81	Infoview	85
TCP Services	81	Intelligent Nations Inc.	78
TCP Services	81	ITC The Intelligence	84
TCP Services	81	ITC Computers	87
TCP Services	81	Net Computers	86
TCP Services	81	Net Computers	86
TCP Services	81	Net Computers	86
TCP Services	81	Net Computers	86

Hardware & Software

Hardware & Software	81	IT Technology	48
Hardware & Software	81	IT/IT Computer Canada Inc.	85
Hardware & Software	81	Infoview	85
Hardware & Software	81	Intelligent Nations Inc.	78
Hardware & Software	81	ITC The Intelligence	84
Hardware & Software	81	ITC Computers	87
Hardware & Software	81	Net Computers	86
Hardware & Software	81	Net Computers	86
Hardware & Software	81	Net Computers	86
Hardware & Software	81	Net Computers	86
Hardware & Software	81	Net Computers	86

EasyNet.com

EasyNet.com	81
EasyNet.com	81
EasyNet.com	81
EasyNet.com	81
EasyNet.com	81
EasyNet.com	81
EasyNet.com	81
EasyNet.com	81
EasyNet.com	81
EasyNet.com	81

CD Rom

CD Rom	81
CD Rom	81
CD Rom	81
CD Rom	81
CD Rom	81
CD Rom	81
CD Rom	81
CD Rom	81
CD Rom	81
CD Rom	81

Events

Events	81
Events	81
Events	81
Events	81
Events	81
Events	81
Events	81
Events	81
Events	81
Events	81

TCP Services

TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81

Hardware & Software

Hardware & Software	81
Hardware & Software	81
Hardware & Software	81
Hardware & Software	81
Hardware & Software	81
Hardware & Software	81
Hardware & Software	81
Hardware & Software	81
Hardware & Software	81
Hardware & Software	81

Service & Consulting

Service & Consulting	81
Service & Consulting	81
Service & Consulting	81
Service & Consulting	81
Service & Consulting	81
Service & Consulting	81
Service & Consulting	81
Service & Consulting	81
Service & Consulting	81
Service & Consulting	81

TCP Services

TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81
TCP Services	81

Online & Connected

Online & Connected	81
Online & Connected	81
Online & Connected	81
Online & Connected	81
Online & Connected	81
Online & Connected	81
Online & Connected	81
Online & Connected	81
Online & Connected	81
Online & Connected	81

Your Remanufacturer

Your Remanufacturer	81
Your Remanufacturer	81
Your Remanufacturer	81
Your Remanufacturer	81
Your Remanufacturer	81
Your Remanufacturer	81
Your Remanufacturer	81
Your Remanufacturer	81
Your Remanufacturer	81
Your Remanufacturer	81

Only a computer program is also described in this section as published in the AD INDEX. It is not intended to be used as a guide to purchase.

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- 3.1/2" 1 44MB Floppy Disk Drive
- 52X Max CDROM Drive
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- NVIDIA GeForce2 MX200 32MB AGP4X Video
- Integrated AC'97 Codec 3D 5.1 PCI Sound
- 56K V.90 Internal PCI Fax Modem w/Noise
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- NetMedia Keyboard
- Wheel Mouse w/Pad
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- Sub-woofer Speakers
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- Integrated AC'97 Codec 3D 5.1 PCI Sound
- 56K V.90 Internal PCI Fax Modem w/Noise
- 10/100Mbps Fast Ethernet PCI NIC
- ATX Mid Tower Case (w/300W P4 ATX PS)
- NetMedia Keyboard
- Wheel Mouse w/Pad
- Two Year Parts & Labour Depot Warranty

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